

Having thus described the invention, it is claimed:

1. An airflow indicator for a vacuum cleaner, comprising:

a housing mounted to a casing of the vacuum cleaner;

a piston chamber defined within the housing;

a piston received in the piston chamber and movable therein between a first position and a second position;

a first port formed in the housing and communicating with the piston chamber, the first port being open to ambient;

a second port formed in the housing and communicating with the piston chamber, the second port being spaced from the first port and being open to a filter chamber of the vacuum cleaner; and

a valve mounted to the housing for obstructing air passage into the piston chamber, the valve including a diaphragm having a slit that opens in response to a predetermined pressure differential between the first port and the second port.

2. The airflow indicator of claim 1 wherein said diaphragm slit comprises a cross-slit.

3. The airflow indicator of claim 1 wherein the predetermined pressure differential occurs when the filter chamber is relatively full creating a low pressure relative to atmosphere.

4. The airflow indicator of claim 1 wherein the piston moves from the first position toward the second position when the diaphragm is open.

5. The airflow indicator of claim 1 wherein at least a portion of the housing is transparent to permit viewing of the piston when the piston is in at least one of the second position and a transition toward the second position.

6. The airflow indicator of claim 1 wherein said housing is so oriented that gravity urges the piston toward the first position.

7. The airflow indicator of claim 1 wherein the diaphragm slit remains closed at a pressure differential of less than about 56 inches of H₂O.

8. The airflow indicator of claim 1 wherein the diaphragm is fabricated from a material including silicon.

9. The airflow indicator of claim 1 wherein the piston includes a solid first face and an apertured second face leading to an interior cavity.

10. The airflow indicator of claim 1 wherein the piston chamber is a generally trapezoid-shaped prism and the piston is similarly shaped such that cross-sectional area of the piston substantially fills the cross-sectional area of the piston chamber.

11. The airflow indicator of claim 1 wherein the second port is oriented approximately normal to at least one of a longitudinal axis of the piston chamber and the first port.

12. A vacuum cleaner comprising:
a casing and a filter chamber; and

an airflow indicator mounted within the casing, the airflow indicator comprising:

a housing,

a piston chamber defined within the housing,

a piston slidably mounted in the piston chamber and reciprocating between a first position and a second position,

a first port formed in the housing for connecting the piston chamber to ambient,

a second port formed in the housing, and spaced from the first port, for connecting the piston chamber to the filter chamber,

a valve mounted to the housing and selectively openable in response to a predetermined pressure differential between ambient and the filter chamber causing an air stream to pass from the first port into the piston chamber, the air stream urging the piston towards the second position.

13. The vacuum cleaner of claim 12 wherein the airflow indicator housing includes a transparent portion for viewing the piston in at least one of the piston second position and movement of the piston toward the second position.

14. The vacuum cleaner of claim 12 wherein the casing includes a viewing opening for viewing the piston in at least one of the second position and movement toward the second position.

15. The vacuum cleaner of claim 12 wherein said piston is urged toward the first position.

16. The vacuum cleaner of claim 15 wherein gravity urges said piston towards the first position.

17. The vacuum cleaner of claim 12 wherein said piston comprises a solid first face and a second face including an opening leading to an interior cavity.

18. A method of indicating when a debris collecting filter chamber of a vacuum cleaner is filling up, the method comprising the steps of:

providing an airflow passage between the chamber and ambient;

obstructing flow in the airflow passage with a normally closed valve;

filling the filter chamber with debris thereby causing a predetermined pressure differential between atmosphere and the filter chamber;

opening the valve thereby opening the airflow passage and causing air to flow from ambient towards the filter chamber; and

using the air flowing towards the filter chamber to indicate that the container is filling up.

19. The method of claim 18 wherein the step of using the air flowing from atmosphere to the associated container comprises the subsidiary step of:

moving a piston within the airflow passage from a resting position toward a positive airflow position which indicates that the associated container is filling up.

20. The method of claim 19 further comprising the step of:

urging the piston toward the resting position.

21. An airflow indicator for a vacuum cleaner comprising:

a casing having a filter chamber;

an air path on the casing leading from ambient into said filter chamber;

an indicator movably mounted in said air path;

a valve mounted in said air path for selectively allowing a flow of air through said air path, said valve comprising a diaphragm formed of a resilient material, said diaphragm including a slit which opens when an air pressure differential between ambient and said filter chamber exceeds a predetermined limit.

22. The indicator of claim 21 wherein the diaphragm slit comprises a pair of intersecting slits.

23. The indicator of claim 21 wherein said diaphragm comprises a material including silicon.

24. The indicator of claim 21 wherein said diaphragm is approximately disc shaped.

25. The indicator of claim 24 wherein said disc shaped diaphragm includes a bowed central portion.

26. The indicator of claim 24 wherein said disc shaped diaphragm includes a ribbed peripheral portion.

27. The indicator of claim 21 wherein said diaphragm slit opens at an air pressure differential of greater than about 56 inches of H₂O.